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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,297	10/23/2003	John M. Cioffi	STFD.060PA (S02-085)	1138
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CRAWFORD MAUNU PLLC			LEVITAN, DMITRY	
1270 NORTHLAND DRIVE, SUITE 390			ART UNIT	PAPER NUMBER
ST. PAUL, MN 55120			2616	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/692,297	CIOFFI ET AL.	
	Examiner	Art Unit	
	Dmitry Levitan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Amendment, filed 09/14/07, has been entered. Claims 1-25 remain pending.

Drawings

1. The drawings in this application appear to be informal. If this is the case, when application is allowed, applicant will be required to submit new formal drawings.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following information mentioned in the description: equal rate allocation on Fig. 2, as disclosed on page 11, therefore the disclosed advantage of the proposed algorithm is not supported by Fig. 2.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities: text on pages 10 and 11 is unclear:
 - c. Step 2 operation is unclear, as the relations between the rate increase and the resulting vector of transmit powers are not disclosed.

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- d. Step 3 details, directed to set of users, are unclear.
- e. Text directed to the algorithm on page 10 and 11 is unclear, as the steps of the algorithm are not clearly disclosed.

Appropriate correction is required.

2. The amendment filed 9/14/07 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: a CPU is well recognized as being clock-based. The application as filed, comprise claim 25 directed to “a clock based circuit that maintain a data transmission rate of the data terminal as a function of a minimum user transmission rate defined to provide an expected minimum quality of communication for each user”, without any disclosure that the clock based circuit is a portion of the CPU.

Therefore, the specification amendment, filed in response to rejection of claim 25 under 35 U.S.C. 112, first paragraph, implying that the claimed clock based circuit is a portion of the CPU, introduces new matter into disclosure.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

3. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

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The specification does not provide sufficient details to enable a skilled in the art to make and use the invention because it does not adequately describe the following:

Regarding claims 1, 10, 20, 21 and 25, how to change the transmission rate based on a function of resulting vector of transmit powers, a degree and a power based criteria.

Regarding claims 1, 10, 20, 21 and 25, how to generate a resulting vector of transmit powers based on the increase transmission rate.

Regarding claim 25, clock-based circuit that maintains a data transmission rate, as the disclosure provides no information on a clock-based circuit.

The specification does not provide enough details about the structure and operation of the elements associated with the above identified claimed features to enable one skilled in the art to make and use the invention without undue experimentation.

4. Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 10, 20, 21 and 25 limitations directed “resulting vector of transmit powers ensuing the increased transmission rate” are unclear, because it is not understood what is “resulting vector of transmit powers”.

Claims 1 and 20 limitations, directed to “a degree of transmission-rate-allocation unfairness relative to the transmission rates of all users”, are unclear, as written, as it is not understood if claimed degree is one value of unfairness for each user or a set of unfairness values for all users.

Claim 4 recites the limitation "the set of all users and the corresponding iteration" in line 2 and 3. There is insufficient antecedent basis for these limitations in the claim.

Claims 10 and 21 limitations, directed to "for each user, increasing its transmission rate without changing the transmission rate of the other users" is unclear, because increasing transmission rate for each user will change the transmission rates for all the users.

These are only examples of the claims problems. All claims should be reviewed to resolve the claim's clarity problems.

Claim Rejections - 35 USC § 103

5. Claims 1, 3, 4, 6, 7, 10, 15-18, 20, 21, and 23-25 (as best understood) are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehavi (US 6,005,855).

6. Regarding claims 1, 6, 10, 15, 20, 21 and 23-25, Zehavi substantially teaches the limitations of the claims.

A method, a system and data terminal for allocating user transmission rates in a communication system that is adapted to permit users to transmit data simultaneously via shared frequency and special resources (a communication system, including CDMA, with multiple users sharing a communication resource 1:20-55), comprising:

while maintaining the transmission rates of the users to at least a minimum user transmission rate to provide expected minimum quality of communications for each of the users, incrementally adjusting the transmission rates of the users by iteratively changing the transmission rate of each user (maintaining a minimum transmission rate, as an allocated traffic

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channel 2:65-3:25, with a capacity to support speech transmission with predefined quality 7:35-60) as a function of

transmit powers ensuing from increased transmission rate (power control groups, shown on Fig. 4 and 8:42-67),

a degree of transmission rate allocation unfairness relative to the transmission rates of all users (utilizing fairness in the overflow rate assignment, which is inherently is directed to unfairness, because these both factors are interrelated, 21:14-22:30), and a power based selection criteria (providing maximum separation for duplicate power groups, as shown on Fig. 4 and 8:62-9:2).

Zehavi does not teach combining transmit powers into a vector.

Official notice is taken that combining a set of values in a vector is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add combining transmit powers into a vector to the system of Zehavi to improve the system analysis by utilizing a well known vector presentation of the transmit powers for mathematical operations to optimize the system.

In addition, regarding claim 10, Zehavi teaches determining the channel rate increase based on the system available/total capacity, as overflow channels are assigned to the travel channels only if the system capacity is available 9:60-66.

In addition, regarding claims 21 and 25, Zehavi teaches means to implement his method, as shown on Fig. 2, wherein the digital transmission terminal/base station, shown on Fig 2 and 6:51-65, is inherently clock based, because clock is essential for the operation of the system.

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7. Regarding claims 3, 4 and 16-18, Zehavi teaches assigning the variable rate to all users, therefore performing his method until all the users are served and all possible system capacity pool is distributed 3:17-25.

8. Regarding claim 7, Zehavi teaches assigning the traffic channel to the user before assigning an overflow channel to increase the users rate 2:65-3:10.

9. Regarding claim 8, Zehavi teaches assigning the additional rate to the user by adding one or more overflow channels 20:35-45.

10. Claims 5, 12, 14 and 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehavi (US 6,005,855) in further view of Admitted Prior Art (Current Application, Background). Zehavi substantially teaches the limitations of the claims (see parent claims rejections above). Zehavi does not teach using OFDM method.

Admitted Prior Art teaches OFDM systems as typical communication systems for multiple users, 2:5-11.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add using OFDM method to the system of Zehavi to improve the system compatibility with popular IEEE 802.11a standard.

11. Regarding claim 13, Zehavi teaches assigning the variable rate to all users, therefore performing his method until all the users are served and all possible system capacity pool is distributed 3:17-25.

Response to Arguments

Applicant's arguments filed 9/14/07 have been fully considered but they are not persuasive.

On page 9 of the Response, Applicant argues that Fig. 2 supports the disclosure, because the disclosure does not comprise any reference characters not mentioned in the drawing.

Examiner respectfully disagrees.

The cited portion of the disclosure "as shown on Fig. 2, the resulting rate allocation is significantly better than equal rate allocation" on page 11 lines 25 and 26 is not supported by Fig. 2, because Fig. 2 does not show rate allocation.

Fig. 2 comprises a single curve, representing System throughput, and no information related to rate allocation comparison with equal rate allocation, as clearly indicated in the previous Office Action.

On page 9 of the Response, Applicant argues that the resulting power vector based on the increase transmission rate is disclosed in Appendix A.

Examiner respectfully disagrees.

Applicant failed to provide any portion of the Appendix to support determination of the resulting vector. Appendix A comprises no information directed to determination of resulting power vector based on the increase transmission rate.

On page 9 of the Response, Applicant argues that the method steps, directed to the algorithm and a set of users, are clearly disclosed on pages 10 and 11 (steps 1-4).

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Examiner respectfully disagrees.

The cited portion of the disclosure was indicated as unclear text in the previous Office Action.

Therefore, Applicant's reference to this portion of the disclosure without any explanations is not understood.

On page 10 of the Response, Applicant argues that the rejection of claims 1, 10, 20, 21 and 25 under 35 U.S.C. 112, first paragraph is not appropriate, because the transmission rate change are well-known.

Examiner respectfully disagrees.

Claims 1, 10, 20, 21 and 25 have been rejected under 35 U.S.C. 112, first paragraph, because the specification does not provide sufficient details to enable a skilled in the art to make and use the invention because it does not adequately describe how to change the transmission rate based on a function of resulting vector of transmit powers, a degree and a power based criteria.

The rejection is not directed to any change of transmission rate but to the change based on a function of resulting vector of transmit power, a degree and a power based criteria.

On page 10 of the Response, Applicant argues that the rejection of claims 1, 10, 20, 21 and 25 under 35 U.S.C. 112, first paragraph is not appropriate, because the iterative algorithm is disclosed in Appendix A, section IV.

Examiner respectfully disagrees.

The cited portion of the Appendix provides no information on generating a resulting vector of transmit power based on the increase transmission rate. The only vector, mentioned in the cited

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portion of Appendix A is a standard interference vector, which is not a resulting vector of transmit powers.

On page 10 of the Response, Applicant argues that CPU is an example of a clock based circuit.

Examiner respectfully disagrees.

Applicant's arguments are based on new matter introduced by the amendment. See the new matter objections above.

On page 11 of the Response, Applicant argues that the disclosure provides clear explanation of resulting vector of transmit power.

Examiner respectfully disagrees.

Appendix A provides no information on generating a resulting vector of transmit power based on the increase transmission rate.

On page 11 of the Response, Applicant argues that claims limitations, directed to a degree of transmission-rate-allocation unfairness relative to the transmission rates of all users are clear.

Examiner respectfully disagrees.

Applicant failed to provide any clarification to the claims 1 and 20 problems, indicated in the previous Office Action, but cited the portion of the disclosure, which has been indicated as unclear.

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On page 11 of the Response, Applicant argues that claim 4 limitations, directed to the set of all users and the corresponding iteration do not require basis

Examiner respectfully disagrees.

Claim 4 limitations, directed to “the set of all users” have no antecedent basis, as “the set of all users” is different from claim 1 limitations “all users”, because a set of all users can be directed to a portion of all users.

Claim 4 limitations “the corresponding iteration” fails to identify the particular iteration of the claim without proper antecedent basis.

On page 12 of the Response, Applicant argues that the Zehavi does not teach changing the transmission rates of the users relative to each other.

Examiner respectfully disagrees.

Zehavi clearly teaches assigning overflow channels to the users to accommodate their rate requirements. See Zehavi 2:65-3:25. These additional channels change the transmission rates of the users relative to each other.

On page 12 of the Response, Applicant argues that the Zehavi does not teach “fairness” of the allocation of available channels to active channels.

Examiner respectfully disagrees.

Zehavi clearly teaches fairness in the assignment of overflow channels as shown on Tables I-III and corresponding text on 22:25-24-25 to avoid assignment of three of six overflow channels to one active traffic channel 22:51-55.

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Claims 1, 6, 10, 15, 20, 21 and 23-25 are rejected as being unpatentable under 35 USC 103 over Zehavi as presented in the last Office action.

Applicant's arguments regarding the Official notice have been fully considered but they are not persuasive.

The Official note concerning combining a set of values in a vector is maintained.

IEEE Dictionary of IEEE standard terms, IEEE, 2000, pages 1, 2 and 1249 is cited herein as evidence to support examiner's taking of Official Notice; clearly teaches combining a set of values in a vector, as a set of numbers is organized in a vector.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Levitan whose telephone number is (571) 272-3093. The examiner can normally be reached on 8:30 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'DL' followed by a stylized name.

Dmitry Levitan
Primary Examiner
Art Unit 2616

**DMITRY LEVITAN
PRIMARY EXAMINER**